



USAAVSCOM REPORT - TR77-42



FLIGHT TEST REPORT OF THE MODEL OH-58A HELICOPTER WITH THE 206-706-129-1 HIGH TUBULAR SKID GEAR KIT INSTALLED

Thomas L. Sanders
BELL HELICOPTER COMPANY
Post Office Box 482
Fort Worth, Texas 76101

4 August 1972

FINAL REPORT

DEGLERATE ST. LEWITER

APPROVED FOR PUBLIC RELEASE;
DISTRIBUTION UNLIMITED

Prepared for
U.S. ARMY AVIATION SYSTEMS COMMAND
Maintenance Engineering Division
Post Office Box 209
St. Louis, MO 63166

COPY AVAILABLE TO DDG BOES NOT PERMIT FULLY LEGIBLE PRODUCTION

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered) READ INSTRUCTIONS 19 REPORT DOCUMENTATION PAGE BEFORE COMPLETING FORM 2. JOVT ACCESSION NO. 3. RECIPIENT'S CATALOG NUMBER REPORT NUM USAAVSCOM TR.77-12 5. TYPE OF REPORT & PERIOD COVERED TITLE (FLIGHT TEST REPORT OF THE MODEL OH58A HELICOPTER WITH THE 206-706-129-1 HIGH TUBULAR SKID GEAR 1 Final rept. KIT INSTALLED . 6. PERFORMING ONG. REPORT NUMBER 206-194-122 CONTRACT OR GRANT NUMBER(#) 7. AUTHOR(s) Thomas L. Sanders DAAJØ1-70-C-0057 O. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS 9. PERFORMING ORGANIZATION NAME AND ADDRESS Bell Helicopter Company //extran, P.O. Box 486 Ft. Worth, TX 76101 12. REPORT DATE 11. CONTROLLING OFFICE NAME AND ADDRESS US Army Aviation Systems Command 15 June 1972 P.O. Box 209, ATTN: DRSAV-FEL NUMBER OF PAGES 32 St. Louis, MO 63166 15. SECURITY CLASS. (of this report) 14. MONITORING AGENCY NAME & ADDRESS(II different from Controlling Office) Commander US Army Bell Plant Activity Unclassified DECLASSIFICATION/DOWNGRADING P.O. Box 1605 Ft. Worth, TX 76101 16. DISTRIBUTION STATEMENT (of this Report) Approved for public release; distribution unlimited 17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, If different from Report) 18. SUPPLEMENTARY NOTES This report presents the results of Product Improvement Task 69-2A 19. KEY WORDS (Continue on reverse side if necessary and identify by block number) Flight Test, Test Equipment, Ski Kit, Flight Characteristics, Vibration Characteristics, Hover Performance. 20. ABSTRACT (Continue on reverse side if necessary and identify by block number) This report contains the results of a flight test evaluation conducted on the 206-706-129-1 high skid gear as installed on the model OH58A Helicopter. An L2700-206 HS ski kit, manufactured by Airglas Engineering Company was also installed on the high skid gear and evaluated. The limitations and hover performance of the baisc OH-58A helicopter remained unchanged.

254 200

Unclassified



TECHNICAL DATA

MODEL OH-58A

No. of Pages 32 Size "A"

REPORT No. 206-194-122

DATE 6-15-72

TITLE

FLIGHT TEST REPORT OF THE MODEL OH-58A HELICOPTER WITH THE 206-706-129-1 HIGH TUBULAR SKID GEAR KIT INSTALLED

PREPARED UNDER CONTRACT DAAJO1-70-C-0057 P.I.P. Task 69-2A

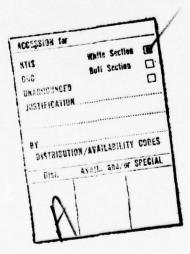
, 0	
BY Flight Test Engineer CHECKED & Harman	DATE 6-16-72
Asst. Chief Flight Test Engineer	
Chief Flight Test Engineer	DATE 7-25-72
PROJECT ENGR. Of Normal	DATE 8-4-72
CHIEF of LABS*	DATE
D. E. R.*	DATE
	DATE
	DATE

* WHEN APPLICABLE

BELL HELICOPTER COMPANY
FOST OFFICE BOX 487 . FOST WORTH 1. TEXAS

PROPRIETARY RIGHTS NOTICE

This data is furnished with unlimited data rights to the U. S. Government in accordance with the provisions of Contract No. DAAJO1-70-C-0057.



72 5542

BELL HELICOPTER COMPANY

MODEL OH-58A PAGE 11

RPT 206-194-122

TABLE OF CONTENTS

	Page
TITLE PAGE	i
TABLE OF CONTENTS	ii
LIST OF FIGURES AND TABLE	iii
SUMMARY	v
INTRODUCTION	1
TEST EQUIPMENT	2
RESULTS AND DISCUSSION Flight Characteristics Vibration Characteristics Hover Performance	4 4 5 6
CONCLUSIONS	7
DISTRIBUTION LIST	27

BY_	T.	L.	Sa	nders
CHE	CKED	0	.L.	Norman

BELL HELICOPTER COMPANY

MODEL OH-58A PAGE iii

RPI 206-194-122

LIST OF FIGURES AND TABLE

Figure		Page
1	Photo of High Tubular Skid Gear Kit and Snow Kit Installed on Model OH-58A Helicopter	8
2	Photo of Airglas L2700-206HS Ski Kit	9
3	Airspeed Calibration, Pilot's System	10
4	Static Longitudinal Stability and Controllability, 2991 lb GW, CG Sta. 106.0	11
5	Apparent Speed Stability, 2991 1b GW, CG Sta. 106.0	12
6	Static Longitudinal Stability and Controllability, 2252 lb GW, CG Sta. 114.2	13
7	Apparent Speed Stability, 2252 1b GW, CG Sta. 114.2	14
8	Static Longitudinal Stability and Controllability, 3006 lb GW, CG Sta. 106.0	15
9	Apparent Speed Stability, 3006 1b GW, CG Sta. 106.0	16
10	Static Longitudinal Stability and Controllability, 2342 lb GW, CG Sta. 114.2	17
11	Apparent Speed Stability, 2342 lb GW, CG Sta. 114.2	18
12	Pilot Seat Vertical Vibration Vs Indicated Airspeed During Level Flight, 2887 lb GW	19
1.3	Copilot Seat Vertical Vibration Vs Indicated Airspeed During Level Flight, 2887 lb GW	20

BELL HELICOPTER COMPANY

MODEL OH-58A PAGE IV

RPT 206-194-122

LIST OF FIGURES AND TABLE - (cont)

Figure		Page
14	Pilot Seat Vertical Vibration Vs Indicated Airspeed During Level Flight, 2262 lb GW	21
15	Copilot Seat Vertical Vibration Vs Indicated Airspeed During Level Flight, 2262 lb GW	22
16	Photo of High Gear Skid Tube with Ten Pound Lead Weight and Ski Installed	23
Table		
I	Log of Flights	24-26

BELL HELICOPTER COMPANY

MODEL OH-58A PAGE V

RPT 206-194-122

FLIGHT TEST REPORT OF THE MODEL OH-58A HELICOPTER WITH THE 206-706-129-1 HIGH TUBULAR SKID GEAR KIT INSTALLED

SUMMARY

This report contains the results of a flight test evaluation conducted on the 206-706-129-1 high skid gear as installed on the Model OH-58A Helicopter.

The high tubular skid gear kit consists of basically the same tubular skid tubes as the standard gear, but attaches to higher cross tubes in order to provide additional ground clearance for the helicopter fuselage and tail rotor when landings in rough terrain are required. Two passenger steps are installed on the forward cross tubes for entry to and from the helicopter.

A ten pound lead weight was installed on the forward end of each skid tube to reduce gear vibration during flight and chatter during autorotation touchdown.

An L2700-206HS ski kit, manufactured by Airglas Engineering Company, was installed on the high skid gear for evaluation. A modified 206-050-221 (isolation spring) landing gear cross tube support was installed in addition to the aft 206-052-105-13 strap to reduce landing gear vibration when the ski kit is installed.

The limitations and hover performance that apply to the basic OH-58A Helicopter remain unchanged as the result of the high skid gear and ski kit installation. By T. L. Sanders

CHECKED O.L. Norman

HELL HELICOPTER COMPANY

MODEL OH-58A PAGE 1

RPT 206-194-122

FLIGHT TEST REPORT OF THE MODEL OH-58A
HELICOPTER WITH THE 206-706-129-1
HIGH TUBULAR SKID GEAR KIT INSTALLED

INTRODUCTION

A flight test evaluation of the Model OH-58A Helicopter, S/N 40621, with a high tubular skid gear and ski kit installed, was conducted from 11 January to 23 February 1972, at the Bell Helicopter Company (BHC) Flight Research Center, Arlington, Texas.

Test emphasis was directed toward the investigation of cabin vertical two-per-rev vibration and helicopter static longitudinal stability as influenced by the installation of the high skid gear and ski kit.

This report contains, in the Results and Discussion, information relative to the various configurations evaluated by BHC Flight Test Pilot Mr. L. W. Hartwig. However, data are not presented for all configurations evaluated, but are on file at the Flight Research Center.

POST OFFICE BOX 487 . FORT WORTH L TEXAS

MODEL OH-58A PAGE 2

RPT 206-194-122

TEST EQUIPMENT

Test Helicopter

A Model OH-58A Helicopter, S/N 40621, was utilized as the test vehicle during the test program.

Landing Gear Kit, P/N 206-706-129-1 (See Figure 1)

The high tubular skid gear assembly provides increased ground to fuselage clearance as compared to the standard skid gear assembly and consists of the following:

- (a) Two cross tubes in the general shape of the standard gear cross tubes except extended in height.
- (b) Two skid tubes, similar to the standard tubular type skid tubes except extended in length at the toe and at the heel; P/N 206-052-108-5.
- (c) A step attached to the forward cross tube on each side of the helicopter to facilitate entry and exit.
- (d) An OH-58A 206-052-105 strap on the forward cross tube support.
- (e) A 206-052-105-3 strap was removed from the aft cross tube and replaced with a 206-052-105-13 strap, which is larger.

206-050-221 Cross Tube Support Assembly

This support assembly is utilized with the 206 popout float kit on the forward cross tube and isolates the skid tube from the fuselage. This support assembly was modified to accept a 206-052-105-13 strap and was installed on the aft cross tube.

OH-58A Ski Kit

Airglas Engineering Co., Inc., of Anchorage, Alaska, manufactured the L2700-206HS ski kit, which consisted of fiberglass skis with steel runners. A strap attaches the skis to the skid tube. See Figure 2.

By T. L. Sanders

CHECKED O.L. Norman

BELL HELICOPTER COMPANY

MODEL OH-58A PAGE 3

TEST EQUIPMENT - (cont)

Instrumentation

An eighteen channel Consolidated Electrodynamics Corporation (CEC) oscillograph recorder was installed to record pilot and copilot vertical vibration data. The accelerometers utilized were the CEC Model A-69.

The fore and aft cyclic stick position was obtained through the use of a visual indicator. The indicator was driven by a rotary potentiometer, mechanically linked to the cyclic stick.

Airspeed Calibration

The airspeed system of the aircraft was calibrated by the trailing bomb method for the flight regimes of climb, level flight, and autorotation. Figure 3, page 10, presents the results.

Log of Flights

A log of all flights listing the data, flight number, duration time, purpose and/or configuration, is shown in Table I.

BELL HELICOPTER COMPANY

MODEL OH-58A PAGE 4

RPT 206-194-122

RESULTS AND DISCUSSION

Prior to testing, all controls were checked for proper rigging and current weight and balance was obtained.

Flight Characteristics

Tests were conducted at the critical conditions of the center of gravity (cg) - gross weight (GW) envelope to determine the flight characteristics of the helicopter with the 206-706-129-1 high skid landing gear and snow ski kit installed. From previous test experience it has been determined that the two conditions of (1) heavy GW, forward cg, and (2) light GW, aft cg, are the most critical. As a result the following configurations were evaluated:

	Configuration	GW	cg	Fig.	Page
1.	206-706-129-1 Kit, High Skid Gear	2991	106.0	4	11
2.	206-706-129-1 Kit, High Skid Gear	2252	114.2	6	13
3.	206-706-129-1 Kit, High Skid Gear and Snow Ski Kit	3006	106.0	8	15
4.	206-706-129-1 Kit, High Skid Gear and Snow Ski Kit	2342	114.2	10	17

Figures 4 through 7 present controllability, stability, and apparent speed stability data for the helicopter at forward cg (Fuselage Sta. 106.0), and aft cg (Fuselage Sta. 114.2) when the 206-706-129-1 high skid gear kit was installed. The passenger doors were on and landing gear steps installed. These flights represent the basic high skid gear configuration and the data show the flight characteristics to be satisfactory.

BY T. L. Sanders

CHECKED O.L. Norman

BELL HELICOPTER COMPANY

MODEL OH-58A PAGE 5

RPT 206-194-122

RESULTS AND DISCUSSION - (cont)

Ground handling operations of the aircraft were satisfactory with the high skid landing gear kit installed.

The ski kit, L2700-206HS, was installed on the high skid gear and Figures 8 through 11 present controllability, stability, and apparent speed stability data for the helicopter at forward and aft cg flight conditions. Data indicate the flight characteristics are acceptable.

Vibration Characteristics

Tests were conducted at the critical condition of the cg-GW envelope to determine the vibration characteristics of the helicopter with the 206-706-129-1 high skid landing gear and snow ski kit installed.

Figures 12 through 15 present the pilot and copilot vertical vibration characteristics of the Model OH-58A Helicopter for the configurations shown.

During evaluation, the high skid gear exhibited unacceptable gear chatter during the slide-on portion of a touchdown autorotation. The addition of lead weights (ten pounds) to the forward end of the skid tubes (see Figure 16) damped the gear chatter and improved the in-flight vibration characteristics of the aircraft. Combinations of less skid tube weight and 206-050-221 (isolation springs) support assembly were evaluated, but were unacceptable due to gear chatter or fuselage vibration.

The L2700-206HS ski kit was installed on the high skid gear and flights made to determine fuselage vibration characteristics as the result of the installation. An excessive amount of skid shake existed above 80 knots. The two-per-rev vibration was considerably reduced with the installation of the ten pound lead weight on the forward end of each skid tube. However, the aft end of the skid tube continued

By T. L. Sanders

CHECKED O.L. Norman

BELL HELICOPTER COMPANY

MODEL OH-58A PAGE 6

RPT_____206-194-122

RESULTS AND DISCUSSION - (cont)

to shake excessively. The aft oscillatory skid motion was damped by the installation of two 206-050-221 (isolation spring) aft cross tube support assemblies. This configuration resulted in an acceptable two-perrev vertical vibration above 100 knots indicated airspeed (IAS). However, the support assembly was believed to be structurally inadequate and, as a result, the 206-050-221 support assemblies were modified by removing the 206-050-224-1 (strap) support and installing the large 206-052-105 strap (used with high skid gear). Also, the rubber bonded to the inside of the 206-052-105 strap was reduced .040 inch to allow more clearance between the cross tube and the cross tube support to improve isolation spring operation. This configuration produced a marginally acceptable two-per-rev vibration level through the speed regime. A more uniform rubber bond to the inside of the 206-052-105 strap would probably further reduce the two-per-rev vibration level.

All of the changes made to the test landing gear assembly have been incorporated in the production assemblies. The lead weights that were attached to the skid tubes, externally, have been replaced with weights located inside the forward end of the skid tubes.

Hover Performance

The test skid gear is approximately one foot higher than the standard skid gear and, as a result, the four-foot in-ground-effect (IGE) hover performance data previously published for the basic helicopter are the same as three-foot IGE hover performance for the test configuration.

BY T. L. Sanders

BELL HELICOPTER COMPANY

MODEL OH-58A PAGE 7

CHECKED O.L. Norman

RPT 206-194-122

CONCLUSIONS

A flight test evaluation of the Model OH-58A Helicopter, S/N 40621, with the 206-706-129-1 high tubular skid gear and ski kit installed has been successfully completed. On the basis of the results of these tests it is concluded that the new landing gear configurations did not have any significant effects on the flight characteristics of the helicopter. Therefore, the flight limitations that apply to the basic OH-58A Helicopter remain unchanged when the high skid gear is installed with or without the ski kit.

Hover performance with the high skid gear installed will be the same as for the basic helicopter except the skid height above the ground must be lowered from four feet to three feet in order to maintain the same rotor height above the ground.

By T. L. Sanders

CHECKED O.L. Norman

BELL HELICOPTER COMPANY

MODEL OH-58A PAGE 8

RPT 206-194-122



Fig. 1 High Tubular Skid Gear Kit and Snow Kit as Installed on the Model OH-58A Helicopter, BHC Photo No. 385277

BELL HELICOPTER COMPANY

MODEL OH-58A PAGE 9

RPT 206-194-122

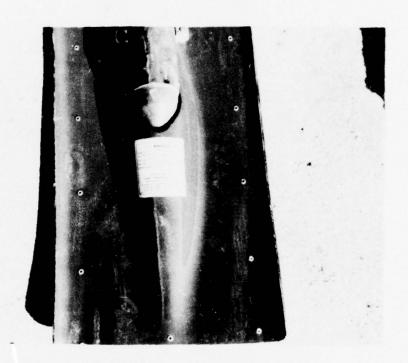


Fig. 2 Airglas L2700-206HS Ski Kit, BHC Photo No. 385275

1000 OH 58A 11. 10 17 206-194-122 40621 FLT. 5A DATE 12 JAN 71 LEGEND ESGW 2419 100 O CRUISE ESCG 100.05 E CLIMB CONFIG. HIGH A AUTO SKID GEAR ! 1-10 1160 1 120 140 -100 --20 SPEED~ AIR 100 0 40 20 40 0 THUR INDICATED AUSTRED KNOTS AIR SPEED CALLEGATION - PILOTS SYSTEM

7072 84027

FIG 3_

4			-		_						-	DEE		1	ub	OP	Y.	20	TANKS.	YNTH	11		t.L	.01	1-5	BA		.r.B	bt_	11	4			
HE	CKED	-	-			-	-	-			-	111	1111	. 101	412		10	41 ₩03	4	11111	1	EL	_	_	-	-	_	RP	GE_	06	-/	14	-12	2
4															-		-		-	+										-				
1		-	-	1		-	-		-							-			+						-	-				200				
1	1		7-6											- 1	-	-	-	-	-	ļ						-				1				-
+	-		12									-			+		+		+-	-					-	-		-		-			-	
			90	EAR	-										1	-	+		+		-									1				
0	1	2	206-706-129-1	G						-		-		-	+		+		+	•	-	-					-			180				
10-15010	40621 7B	1-14-72		SKID															-											1				
7	45 18	1	IGURATION		0																													FT.
2			NI I	I AR	LED																									160			>	
	- 2		UR	108	NSTALL																									1 =			1	660
MILITARY	SE		0	TUBU	SZ										1		1		1.	1										1			100	1
=	FLIGHT	DATE	COMP	HIGH	KIT					-										1										-		!	170	×
\$	60 14	ã.	ů.	I	X												-		-											15			D.	15
			-			-				-					1		-		-							-		-		1	un		CONTROLLABILITY	DENSITY
1						-				-			•				-			-							-			-	~ KNOTS			hard
-	0	-	-		-		-		-	1	1	1		-	- 1		-	-	1	1	1			-					-	1	X		BILITY &	Z
	OST~1C	0	0	0	0	0	N	-	-	-		-			+		<	7	1	-	-									130		-	-	0
-	0.0		-									1			1		<	9	0			-	1								MIRSPEED		io	STA. 106.0 IN.
	1+ 13	0		0	0	-				1		-					1	1	1				Ó								57		510	TA.
	111~	2000	2000	2000	2000	000	100										1													182	41.7			
-	11	-	-		-		***				1							1:	/		-		1						1	1-			2	CG
	REPH	24	354	54	355	354	24		in	-	1				-		_		1)	1			-					-		1	ALIBRATED		ONGITUDINA	Long.
	<u>क</u>	63	10	(1)	(43	m	(-)	-	CONDITIONS	-	1			- 1	-				1	11			-	-						1	120		10	me!
		10	-X						15	-	-	-				-+	+		-		1		-	5				-		03	7		120	100
	CCAL	Y	>	>	KTS.				ON	-		-			-	-	-			-	1			1			>	-		1	, ci		_1	5.G.W
0	M RANGE	15-60 KTS	6 VMBX - VMBX	SVMAX-VL	-14	-				-	-	-			+		-		1		>	1	1	1			OLLABILITY		NO.	-			4	
2	E E	20	A9.	84	115				RIN			-				+			-		1	4	1	1		-	TOL	N	X.	1			STATIC	1662
ON	S		-	vening				-	143	-	1	-				1	1				1	5	9	9)		1	347 NE)	REARWARD	69			W	2
-	RING	TS	×	MA	01				1-													1			1		20	0						
	i-	63	.8 V. 8x	0	MAN				N.S.		1				-						1	1		0	1		CONTR		KT5.				,	
		(M. 100) 100 (M. 100)					delaborat		ig.	-	1					i_			-				5	\	1		00	-	74	40			7	
	100	1	느	+		> AUTOZOTANON			VEIOLS	TIL	-	1.				!			-	-	-		,	-	19	5	-	7	NOTE: 32	1.			(1)	
	CONTINUE	FLIGHT	FLIGHT	9		STI		0	Line.	1	-	-			-		-	-	+	-	-				1	7	Ч	-0	10	1-			516	
-	00			Ĭ.		6		REARWARD	Y2 0	777	-	-					+		-		-				-	-		-	Z	-				
-	15	1	ii	il	Σ	0	III CX	3.0	SOLID	120	-			-	-		-		-	-	1,-					1	-		-	12	-		-	
-	F1.161	E	LEVEL	LEVEL	CLI	U.S	O	ZE A	\$	CONT	1 .	11	+ -				1	1	1		2					4		-		T				
	100011007			1	1.700	KIND	^	^	100	13		7				1	-		1		1		-							-				
	5.	0		7	0	U	0	0		183	1	1									1				^					To				
												0			00				63				2		V	ď				0				
!										1.	1	Ţ.,	!						I		-									-				
-											1.3	7	70:	Vic	144	%	~ 1	1017	150)d :	100	LN	CO	21	KCI	0	TV	NIG	UTIS	1110.	1 .			
1												-	-				-			-			-					-						

3 4		_		-		4		-	1		-	112	L.			POF			00		**			E1	0	1-5	BA_	P	GE.	1	2			
HE	CKE	D	****	-	276m2.0		*****				-	061	2111	201	411	1	-	041	****	1, 11	145	Į.	II.		-		+-	R	L	200	-19	4-1	20	2
	-		- ;			-		-												-							1		0	-				
																									T				200					
	1			-				-																	4	4	4.			4	1		4	
	-	-		12	K			-		-						-						-				-		-	- į.		-		+	
-				00	GEAR			+-	-			-													+		+	+-	8	+	+		+	-
2		1	N	206-706-129-1	SKID			1					•								1					#	1			1	1		1	-
07021-07	12904		1-14-72	10	S	0																												
	Z	78	1	0	O.	1.50		-		ļi																	-		8				1	-
N/S	-	0,		TATION	TUBULAR	INSTALL		-											-						-		+-		-					
		165		-1772	101	SN		+		-							-				+									+			000	
MILITARY	BELL S/N	FLICHT	ш	CONFIG	HIGH	노 노																							140					
¥	111	1	DATE	8	ī	Y		1	ļ								-								1		.		2		1	≥.	Z	
	-	-			-			-		-		-									-		-		-			-		215	-	STABILITY	DEMSITY ALT.	
						-		+	·					-		7					-				-	-		+-	0	XM	1	TA	EM.	
							Ti-	1								9									7				120	10	1	3	01	
	DAT	U	O)										1				AIRSPEED - KNOTS		SPEED	STA. 106.0	
	-	-							-							C										4		1		85		SP	T.	
	10	FEET	2000					+	-	-							-	0			-				-+	\dashv	+-	+-		11		5	5.6	
	-	IL.	7	docum	2010													1		1						Ť	1			CALIBRATED		APPARENT	3	- (4)
	ROTOR	RPM	354															(3											RE		8	LDMG.	
			M					-											-	5						-			00	3		V.	-	
	39							-	1										-	. \					1		-	+-1	-	91	-		0	
	RAN	AS						-													9				1		1						1.0	
EGEND	S	UV																				5)						60				0	
OH	AAS RANGE																						1						Φ	+	i	5	662	
-	-	Z						-	-														-6)	-	i-					+	F16.	+	C
	1	FLIGHT CONDITION	THE						-										-		-		(5					0	1	1	LLI	-	
		2	FLIGHT																					7					40					
		8						-	ļ	-		-														_	+			-		-		
-	-	25	LEVEL					-	1	-		-	-								-						+			-	-	-	-	
		1	7					1						-					-						1		-		20		İ		1	
		2X.M	0							1									11011							1		9						
	1	10	_	-						1						-										1	-	170		-				
								-	1	-) er u tag			-		-	-										+		0		-			
	-						- -	-	-	100				13			7	1 .			9	-			C			C)	-			-	
	-							1	al V	חת	d 1	10:	ld	7. n	N	011	15	5d	70	d I	NQ	2	21	LCF	5	TVI	nạn	1191	07					
					-			-																	-					-			-	
44.1						-															-				-			-					-	

7											-11		1.	142	1.1	00	my.	are c	COCH	PAN		110	EE1	0	1-51	A.	_ P	AGE_	13	3		1.
HE	CKED	533dy		-			-	-			1.	111	****	1. 1.01	412			341 W			46	11	11_			-	B	212	06	-19.	412	2
- 1											•		****					!	-1.		1	1										
1																			1	1	1	1					1.		200			L
1			=					- 1												. i.	1						1		N			1
			12	~1																1		1					1		1			
			200	BB																		i	1						1			
0			12	SKID GERR																	1								150			
0	_	2	90	9																	1								1=			
S/M 70-15070	40621 7A	1-14-72	CONFIGURATION: 206-706-129-1	S															1		1								1_			
7	100	I	O	TUBULAR	0																1								1			i
1			Ė	31.6	KIT INSTALLED																				-				10		>	1
	1.0		E-7	38	בקנ																T								160		=	200
AR	3 5		O	F	5						1	(341 NH)																			CONTROLLABILITY	-
-	PLICHT	14.1	10x	HIGH	-							12																	T			-
MILITARY	FLEG	DATE	8	I	X						-	34							1		1								100		0	Theorem .
	. Aug Fam.											200			,	1			1		1								1=	. 1	100	1
												õ		1		1				1										15		C
														1					1				T		Ī				T	~ KNOTS	·6"	
	ů,							1					4							1	1								0	3	>	1
	0.637~	N	N	N	N	01	N						4	1		7					T								183	1	-	
	O.							1					1	1		4		1	1		1								1	AIRSPEED	Stability	CAN MA
	1	0		-	_									1		1		Q	1		1								1	25	\$100	1:
	1 2	2000	2000	2000	2000	2000	2000		.,					1			1	1				T					1		0	E	· V	0
	7	N	N	2	N	N	N							1				1	1									Ti	18	: 1	•65	0
1	SX.	4	4	15	4	4	4				-			h		-	1			- 1	1		1						1	CALIBRATED	OSIGITUDINA	1
	ROTOR	354	4 6	550	354	354	354	1	N. C.					7			1	1	1	- ;	1						1	1	1	2	F	0.00
1		-				-	-		TENTION									1		1						1			10	10	· C	
	- 14	50	34						1				-	-		-		9		-	1		1				T		188	3	C	200
-	RSPEED MAAL	15-60 KTS	6 VMAX-YMAX	3 Vmax-V	KTS.			1	CO						1		1		1		1	1				1		1				10
0	90	3	- E	MA	N.										<	>	닏		1	- 1			1				1		1	11		1.
GEND	THE STATE OF	10	0	3	115				KIK.						-	1	1	1	1		1	-	1						1		TATIC	0000
C	13	18	24		d				11							1		9	0		1		1				1		13		U	10
-	12.0	Y	C	N. C.	RAC				F							1		- 1	1	. !	1		1				1		1		1	1
	-	0	S VMAX	0	Vanak R				E I									-	31		1						1		1			T
	-			-	>		-		d'		-					1	Y		7		1								1		19	1
	8					9		1	0	7.57							7		0										45			1
	CONDITION	TE	7	7		Ó				31						1			1	9											Ů.	
	18	E	517	116		B			λs	31					-	-			1	1	1						1		1		Le	1
1	Ü	L	L	IL	m	0	12		0	8	1	3		1		1			1	1		-				1			1_	17		1
	PAICUT	Ē	E	E	Σ	0	> 10		: Soure SY		23.6							1	7		1					1			12			
	1	(iii	E	101	2	90	HOVER			200	T. 1 1112	1	-						9	1	NEUTRA		1	1	1				1		1	1
	CONTRACTOR OF THE PARTY	- Marie	dans.	1	PPA VE	1000	^	project	11	0	111	7		-		-			1		Ha		-				1		7			1
	SYM	0	انا	0	0	0	0	-	7.	3	-			1		-	1		^		1	-	1				1	1	1	1 1		1
-	Carrier of the State of				-	-		-	-	-	-	7	and other party.	-	-	- Transmission		-	0	-	-	-	\$	-	****	50		-	10		-	1
1		- state											-	-		3			03	1		78.00	4		1	-64		1	0			-
!		-						1			45		70.	100	03	4 6	. ~	01/01	1111	04	20	21	100	71	171	7 7	VNI	GUTIB	10	1		
											and to	- 1	1115	1	14 14	1		1 1 1 1		va	1	to rolly !		31	10/1	1	2.231	11212	1		1	1
						-					-			1	-	-			1	-	1	****	1	-		-		1	1	1		1

1		+				-		-			-	ditt	LA.			DOF						C. C.		OF	-58	Α	PAI	lit	-	14	-		
HEC	KE	D.	2 100	-	ni berata	-		-	****	****		581	21115	101				Won			1.1	EL.				-	RP	L	20	6-1	94	-12	2
1		-																		-													
		-					-							-				+										200			-	-	
-	1	1				-		-		:			-					+									-				-		
+	+	1	-	I							- 1 - 1	-					+	-							-	+			-+	-	-		-
1	1	1		12	N.			-	1					-		1	-	+				-	-		+	-		_			-		
+	+	-		00	GEAR				1			-	-			1-1-	-	+						-		-		2			1	-	-
2	_	1	N	1-9	0				1				-				-	-											1				
07021-07	62	1	1-14-12	206-706-129-	SKID																							1					-
2	40621	7	1-1	MOLLE		101																			in the			9				int	
2				7:1	d	4																						3				13.	
3		0		-	300	INSTALLED												-										-				-10	12
MILITARY	2	-	-	0	12	Z						-						-						-				-				905	
111	BEIL S/M	5	DATE	CONFIG	HIGH TUBULAR	KIT							-													-		140			-	٠	_
3	643 1013	1	6	Ŭ	I	X		-	-										-			-						-			STABILITY	DENSITY AUT.	
												-	-													+-	-		015		100	LIS	
	-					-			1		1	-::		-	-										-	-		~	KW	-	TA	EN	
+								-		-	C	1		-		-			-									120	1		1		
+	H			-		-						1																	AIRSPEED - KNOTS		Spero	STA.114.2	-
1	OAT	0	N										9					1										. ;	25	T	DC.	4	
			0										1	1														000	AIR		1	5	
	H.	LII I	2000										C	1														=	- 11		PPARENT	6.6	
1	211	-	t grande g			(MOLENE)))-											-			15	1.	T.C.	5	
- 1	Rorra	HPM	354						1				1		1	1 ::							!						E S		d'e	LONG.	
	1	E	(0)						-						9										!	+		00	CALLERATED		2		
- !	MGE				4 + 20	arce e	N. F. C.	-	+					-	- 7		-											- 1	0			6.11.	
-	A. P.	5					-	-	-			-	-	-		0	-	-			-	-				-		-			-	10	
0	A/S RA	O			-			1	-							1		-	-							+						N	
EGE	8.45	X						-	-		-	-	-	-		9	1											09	-		1	2222	
10	-	-	-		-	contant			1				1	1		1	1	1								1		1			1.	2	2
		O														1 9															519		
		CONDITION	1													(5											40					
	1	N.C.	FLIGHT														1											*					
-													1	ļ		-									<u>.</u>	-		-			-		
		THEIL'S	LEVEL							-			-							-				-							-		
	-	1	1		-					1						-				-				-				20		+	-	-	
-		5			-	transverski		-	1	•							-		t								**				-		
-	-	0	0					-				-				+	-	-	5-	-	-	-			+	-	- And	-	-	+	-		-
-	hamis	-	7-4-7-0-						1				1			-		7	1							1	1				1		-
-								-		Toron	-	-	-	07	*****	Winds or	0			-	,	******		0	,			0-	-		1		
							1							1			99		1	0				-	1		•	-			1		
									TAA.	กก	# 1	10	13	1%	P	DIL	150	170	ivi.	IVO	5	51	וכר	0	TVI	uġn	11960	רנ					
		-														1																	
		1										1		1					*	-				1		i	1		-		1		

4											-		1.	HO	1.14	or	2			מינורו			EL	OH	-58	3	PA	it_	1	5	_!	
11	CKED	-	-	-			-		445	Service .	+	063 8	rice	. 2.24	482		-	041 W2			1	EL	-	+		+	RP	13	06.	194	-12	12
													-						-		-			1		-			0		-	
1				1													1		1		1	1		T	1.				200			1
1			1-62	KIT	F														1													
			5-12	K							-								1			1				1		-1				
5		12	22-0	935	571			-									_	-			+-	-		4	-4:			-	180	-		-
70-150 70	40621 128	27-16-72	200	SKID GEAR	HS		-		-										-		-	ļ		-						-		-
	4067 12.8	4	CONFIGURATION: 206-706-129-1	1	L2700-206HS		1	-								-	+				+	-	1	+		+-	-					
Z S			E	HIGH TUBULAR	0-2																			1					0		>	12
	2		UR	501	270	E														1									160			177
MILITARY	S		510	2		INSTALLED	-								1 1						-	-		-							10	A17 171.D
1	PLICH S	DATE	O	HEH	AND	757		1													-	-				-					0	1 73
2	(A) 15	O	U	I	CT	=1		;			-		-				-		1		-	-		+		-	-	-	140		2	DEMETTY
-						-													-											510	CONTROLLABILITY	2
	-		-0.10	-			-	e e e e e e									1													~ KNOTS	de	
	0																4				1			-	-				120		STABILITY	2
	OAT~C	0	0	6	0	0	0	-									1		-		1	-	-							MINSPEED		STA 1000
-	-	-					+	-							-		-		+		10	-	++	+	+	+	++			BHE	5	1
	14	2000	2000	2000	2000	2000	000								-		<	1 1	1		1			1					0	A.H.		
-	1	12	20	20	20	K	N											1	1										3.0		1	0
	ROW	254	354	554	557.4	354	354	_	m.									/		\!	-	1		-		<u> </u>				CALIBRATED	LONGITUDINA	5110
	SE	(1)	63	E3	10	103	m		TIDING		-			-			-		٠	1	-	- \		- 1						82	H	PER C
-	-1 10	-	ABX		-	-										-	-		1	1	+-	-6	?	+		+-		-	8	AL	10	55
1	ED KEN RANG	1 kg	>	>	¥.			1	CONE											, 1	1		1	1	}	1	RED			u		0
0	SPEED KEAL	15-60 KT.	6VAAX-VAB	SYMAX - V.	10				HIM											8	1		1		KOLLABILITY	1	REARWARD				STATIC	1
ONLO	0,	15	9	60	-		-		hirt-										1	/	R	6		1	C.	341 NZ)	REA		Cg		- E	2000
1	Ct e	1-	×	· ×	RIC				THE								-		-		1	1	-	1	- Ö	100	0-1			-	- 71	
	THH	.A.	>	2.0	VMSX RIC		-	-	ARE		-								+		1	1	-	1	CONT	-	KNOT			+	-	-
		1000	mwater.		>				S. A.	-									1		1)	·······································	1	1	1		84		0		00	
	9		L.			Z				2.44												1	9		5		111		C.y			
	CONDITION	CHI	HE	17.5		Ĭ,		0	SYMBOL								-		-		-	-			1 -	÷0	NOTE: 32	-			9	-
	8	1	口	II.	-	6		MR	5	37									-		1	-	11:	+		-	2			-		-
	15	E	d	1	MB	0.00	/EK	RK	South			;	-						-		.1	-				+		1	25	-	•	-
-	5116	O LEVEL FLIGHT	in .	H	CL	RUTOROTATION	HOVER	REARWARD		CO	. 1	1								-	22		P	-		1			200			
	20 20 20 20 20 20 20 20 20 20 20 20 20 2	10	[]	1	0	0	0	F	1	97	-	5									出								70			
	63	-		7			_					interce		-		*****			-	-	1	-	-	1		-			0			-
-												7			6	3		-	00	-	-	1	0	- ľ		03			þ .	-		-
-																			1	0.1	-			1						-		1
1							-				Lil	. 1	111:	1	200	1 /4	2	1201.	1	Val	112)	UMLIY	73	111	JA	1	HIGI	12,191	UI	1		-
-									-	-									1		1		1	1					1			1

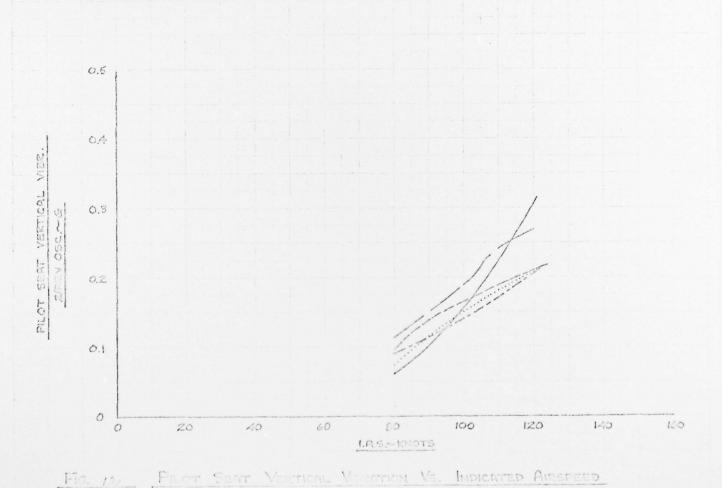
Y .		-	-		_			-			1	:: 4	. 1-1	11.0	00	ing:	200	OCM	ever		101		_0	H-	58.P	L., . P	AGE		16			
1	KED	Erreter	-		***	21 124		***	m reserve	****	10	1 111	1 10	412	ļ		241	PRAN	LELL	15	EL	1		-			2.1	2	26-	196	1-	12
1			-					-			+		-		-			-		- -	4	-	****			4	-			-		
+			+		-		+	+		-	+	-	+-	+	-			-		+-	-	-		-	+		200			+	-	
1	1	1	-	1	1	1		- 1-			-	-	-	+	-			-		-	1	-	1113	-			-			-	-	
+		-	-63	-	KI.		-	-			+			+-	-			-		+-	+	-					+		-	+-		
1	-		106-129	GEAR	×			-			-		-		-					-	+	-	-	-							-	
+		-	90	5	50	-	+	-	-	+	-	-	+	-	-	-		+			+-	-			-		8		-	-		-
9			1	0						-	+		-	1	-	1		-		+-	-	-					1			+	1 -	
150	N -	1	02	SKID	199		+	+	-	+	+		+-	+	+			+	-	+		-			-		1	-		-	1	-
20-15010	406ZI	1	WINDING SOG-	0	KIT AND LETOO-206HS			-		1				1	-	!	-	-	1	-				-			0			-		
	1		9	00	00				1		1		1	1	1	1		-		-	-	1					3				14.	
Z/S	10		5	MIGH TUBULAR	63	INSTALLED							1	1	1			1	1		1						1				0	
E .	* 70 F-4		3	F	9	77					1		1		1			1		1											ALT. 1640	-
1	T (5)	117	12	T	9	3.7.6							1	-	1					1					1		140				1.	
MILITARY	SELL S/N	DATE	CONFIG	I	X	Z		-1					1	-				1									1 4			>	A.	
																												v		1	30	
-										-																i		AIR SPEED - KNOTS		STABILITY	DEMSITY	
1										1		-155 -		-						1	-	<u></u>				-	120	×		15		
					_		v 00					-DIVE	1	1		-				1.	į						1-	F			0.00	
	120	0		-			347 NR				1	1/	4	- 6	1	-						-					1	12	ļi.	Û	18	
	d.	-	1	-			63	4					1		11	<u>i</u>				-	ļ						1	- 03		0	STAIR	
-	FEET T	2000	-				15				-		-		-	9		1	-	-						-	100	4			(5)	
-	H 12	0	-				POINT~		-4			4.	-		-	1											1-	0		FNER	(3)	
	14		- I		^a*	raud-m	1	-			+		+	-	-		0				1	-				+-		CALIBRATED		10	Lowe.	
	ROTO	354					H		+		+		-	-	-	-	1	1		-	-				-		-	10	-	ACC	0	-
	E 10	10.		-		-	Bill		-	-	-			-	+	+		1			+	-					99	- W	-	-		
	9						L.B.	-			1			-	1			1							-1	\pm	1	C		-	G	
1	S RAMGE	1	+				CONTROLLABILITY		+	+	+	-	1		+		-	-6	1	-	+	-			-	-	1		-	+	10	
210	S. RA	1	1				19		1	+	1				1	i		1	9			-		-	-					-	4	
154	PAZ	1					100	1	1		+		-	17	-	1		1	1	1	+	1					60			0	3008	
CHI	-		-		-	-	15				1		1				-			8		1			1		1				30	2
1	NO				-		H						1		1					1	1	1								L		-
	ITION	1 H					DENOT													9							10					
	COND	FLIGHT					2																				40					
-	00	L					16			-		1-		-	1					-						i	1_					
	1.	12					SYMBOL			-			-	+					1	1	4	1									i	
-	FLIGHT	LEVEL				-	27		n	1			-	·		-						1					102			-	1	
-	house	1			-		1 :		1			120	1	-	1	1	ļ	7			-						1				-	
-	12	0					SOL10		150					-	1	-		-15		1.	-						1			-	-	
	10	-					0		11-		-		-	-	-	-				1		-				-	7			-	-	
-	-	-	-						-	-	-			and the same of th	-	-	-	-			-	-	-		-		10				+	
									-03		-		0	-	-		3	- !-	-	04		1		7	-		φ					
		-	1					-	1			001	127	Co. 5	in	17	57	7	110	in-		177	17	41	6310	กราอ	07				1	
			-					sh o	1	1132	1	702	100		1	ada 1 u		1				1				11416	1			-		
		-								-				- indich		-						+			!			Errer		-		

Y									+		- 10	EELA	10	411)	U	OF	× 5.4	Tt cx	V1834	PER			L.L.	20	= 22	3 A_	1	AGE	1			1.
1	CKED	cenel	-		****	****	ze vendo	or and a			- 0	11 255	10		412		-	0 6 1 W 0 3			1	EL		-		+	R	213	06-	194	-/2	2
-									-		-		1	-+					-	-					-1-				-			-
-			-			-	+				-		+											+		+-			200			+
-			62	上			-		-		-		-		-				-					-		-	-		1	-		-
1				X			+		-		-		+		-+		-		+-1					-	+	+	-		-			+
1			00	GEAR KIT	500				-		-	-	+		-				1-1	-				+	-	-	-		1	-		1
70-15070	-	2-15-72	-9	-0	1			-	-		+		-		-		-							-	+	+-	+		180			+
- 26	118	10	8	SKID	T.				-		-		+	-										+		-	i		-	-		-
2	40	N	-24	-0	0	D		-			+		+		-	-			-	-				+	-+-	+	-		1-		-	+
2/3		1	CONFIGURATION: 206-706-129-	TUBULAR	LZ700-ZG6HS	NSTALLED			1		-		-					:						1	+	-	1		1		``	1
	0		-2	5	00	a					-1-		+	+					-					+		-	-		160	-	ABILITY	15
K M	NS L	-	CO	90	12	S	-				- [1	3	+					ti	1	1				-		1:	+	1			100	1.
MILITARY	3	11.5	100	1	-				-		L	(347 1/2)	+		-	-			-					+	T	+	1	-	1			1
- L	SELL S	DATE	Q	MOM	AND	アジ				i	Lo	14	1		1				1	-				-					0		CONTROLL	1
4	.502164	1-1-1	-CL	-721	9	-			- 1		1		-						1	1				1			1		140		100	Denie ity
-							1	•	-		LONG		1	1	1									1			1			15	U	C
-							1		1		1		1						1		-			1	1:				1	~ KNOTS	10.	
100	10	1	ephone.		****			1			1		1							1							1		180	2	>	1:
-	OKT~	In	w	10	10	N	60		1	1	1	-2-(Y		1														27		:	13
-	0							1	1		1		1	9	7	5		1												Fri	10	1 5
	1:										1			1		7		Q:												AIRSPEED	STABILITY	1
1	11.2	1850	1500	1500	1500	00	0.50		1					1		1											1		18	19.1	1	10
-	1.	13	7	15	13	E			-					5		1								1			1		1-	a	12	1
	Ex	354	4	4	4	354	4	1.	1		1		1		'	!										1_			-	CALIBRATED	OTGITUDINAL	1
	R	10	60	10	10	10	6	-	5.	1	1				-	- [3		-					-		1-			1	32	+	
-		1_	×				_	- 1	-		1		1	- !			1	9-								-	ļ		18	1	0	
	A SE	E	Mila	>1				- 1	CONTRACTOR		1		-				1	1	į				;-			1.	1		1	U	2	1
	ED MCAL	0	1	1	5	-	-	and the second		_1.	-	<u>.</u> .	-		1		-	1						4		-			-			1 :
0	EED MCAL	15-60 KT.	6VARX-YUA	OVANAX-VL	10 × 70 × 70 × 70 × 70 × 70 × 70 × 70 ×			-	MIN		-	- :-		-	9	- 1	C	1//	-					1					-	-	TAT	1 9
60	1 17	-	NAME OF SER	-		-			0.	-	-		+			-	1	-6-{	-								-		100		5	1
160	AR.	Ţ	NON	PX	VMAX R/C			-	300		-				- 6	0		1					}	-	-	-			-			1
	4.0	35		3	×			1.	1				-			-/-			1-			-		-			-		1-			+
	-	James .		-	>	-	-].	A SA	1	-			-)	1	9	1					- -					-		0	1
	1	1				7			3-1	> :	+		+				P		士					+	-		+		65		>	-
	DITIO	三	FLIGHT	FLIGHT		AUTOROTATION			200		1		1						19					1	-	-	-	-	1		0	1
	ON.	15	- 12	116		0			27	9	1		-						1					-	-	-	1		1		T.	1
	סמוו		li.	11.		103	0.	- 1	3	22.	1	- 1							1					1			-		1			-
	16	III.	- ju	F	Z.	0	E		100	2	100								1	-	,			1		-	1		15		-	1
	F1.50U	LEVEL	m	LEVEL	CLIMB	30	HOVER	1	. 20E(U	102	北十十	-1-	-	****					9	TOTTON	2				1				J.			1
	1	4		1		Paul III	MAKING!	mes 1	1	3	Ting.		+						1	i	1			1		1		1	7			1
-	5.	10	النا	V	0	U	0		100	-	1	- 1	1				***		1	1							1	1	7		-	-
-	1 100 ye mili 9	-		Sec. Cop.	-		-3 = 1.00	******		1	1	-	witted	n-Masoria	0	3	J-Majore	-	8		Tegetoria	(5		-	00		-	0			-
1		-		1	,		1				-01	1	- 1		C	3			1							-			1			
		1								1	12	77	1:1	Vil	733	1 9/4	-	NOL	iso	1 -	102	In	55 T	717	533	7	INV	00119	10	ī		-
		1								Fernica	-													-			1		1			-
		1				1	-		-		-		1	1	1				1				1	1		1		1	1	1 1		-

1		1										be		1-00	1 .	bo.	playe	-	CCM	mano		110	DE	1.0	H=:	580		PAG		18			
1	:KE	D.	****	-	-	ton h	econ.		*****		1	1011	\$1110	80	1 412			061 4				ME			-		every			6-19	4-1	22	1
1		-										1		1		1					1							1	1		1		
-	1								1				i		1							1			1			000	2				
T		T					1				1																	6	1				
1	1	1	1	-1	1	1-	1				1	1				1						1	1		1			1			1		
1	+	+	1	1-621-902-90	~1	KIT		-		-		-		1	-	-				1	-	-	1	1	1			1			+-	-	
1	1	-		-	GEAR	SKI			-+-	-	-	-	-	-	1	-			-		-	+	+	1				1			+	1.75	
1	-	-	-	200	G	W						-	+							+-	-		+					Car	· · · · ·				
	-	1	1	10		T.						-		-	L	ļ	-				+-		-					-		ļi	+	i	
5	-	-	14	20	SKID	ZOUNS		-				-	1								1		-		-			1			-		
-	40621	10	21-51-2		-	1					1	1.	1		1	ļ					1		1	1									
500000	3	10	1	ZOL	04	2700-													1		1		-		-			5	3			Sunt	
27.1%	-	-		Print Print	1	27	a					1									i							1				- Suri Liv	-
2	1	0.	1	2	0	1	LED					1	1			1				1									:	1		0	
X	12.	to a		Ö	F	ONG	16																									150	
MARLITAKI	351 5/M	T	DATE	11.	HIGH TUBULAR	1	INSTAL		4.4.					1	1	1					1		-		1			10			1	1	
11	LL.		MA	C	HE	F	Z	1.			;	1	1	1		1			1		-		-					2	2		>	ALT:	
-	60	£5.	(4)	V.	177							-		-		-		-	1				-		1			1		1		>	
-		+						-				+	-	-		+					-	-			-	-		+			100	100	
-	- 1	-			-			-		-	+-	1		-	-	-			1		-		1-		1			1	2		STABILITY	DEMBITY	
+			-								·	0		-	-						+		-					120	FETT A. KNOTA	H	10		
-	-	-	-	reason an				T CK					1		1-						-		1		-			-	T.		0	C	
1	OAT	4	N		-			347 NR				-	Ð-	-	-	-	-				-		-						i ti	1	10	14	
-	0	0	-		-				-		1	1	~\		1	1								1	1				U D		SPE	1 P	
-			0					1						5								-	-					000	2		1	100	
-	2	100	1500					POINT			1			1	1							1		1				1-	ć . c	11	RENT	0.5	
-	-	venje	nad-cd	-	metro	editected	s winter	100						1	1		1			11	-								1.4		113	0.0	
	10	2	4.					-						1	7	1	1			-					1			1			PPA	LONG.	
-	ROTOR	HPM	55%					17				1	1	1	1	1					1	-					1.	1	1			-3	
-		-	-	inge, sp		bonne	-24-100	10				1	-	1	Q)	-			· · · · ·	1	-	1		1			6	1 1 V		-	1	
7	E E	-	-					17					1	1		1	1		1		1				1			1		1		C	
-	RAN	9						13	-		-	+-		1	- (D-	-	-	-		+	-	+					-		-	-	-80	
0	C.	048	-					13		-		+	-	-	-	1			-				-		-		-	-		-	-	10	
1	IU3	Y.						CONTROLLABILITY	-			-	-	-	+	0		-		-	+-		-			-		1.0	à		-	2342	
D H	W.							10				-	-	-	1	1						-	-								17	2	
1		7.1						1 cd	- 1			-		-		1)_				-	-	-		-						1.0		0
-		NO.	1-					16				-		1		1	1		-			-	1							ļ	U	l	
-	1	-	FLIGHT					DENOTE				1		-	1	1	0											100	2		1		
-	1 :	77	7					A									1											1			-		
-	1	CONS						1					1	1	1																		
-			LEVEL					SYMBOL	1			1								1					1			1					
-	1	L CICIA	>=					YP	-	-	-	1				1					1		1					1					
-	i	1	7.		•			10		0.4		-		1	-	-		T	-14	1		-	-		1			1477	4				
+	1	ander in	-	SKY 9-4"	*			OL.10	-	-		1	1		1	1			177		1		-	-	1			W.			1		
+	1		0					100	-	-17		-	-	-	-	+	6		17		-	-	-		-			15		-	-	1	
-	1	-				****	-	1.		11-		-		-	-	-		1	[]				1.0					1		-	-	-	
-									-		-	-	-	-		-	-			-	-		ne hore	-	-		more and some		J		-		
. !		-								0				Ċ.	1	1	1	3	-		67		-		0			6.					
						Lan	1							1	.15			1		1	-						1		-				
									13	V T	Emi	110	Ed	174	2	IDI.	TIE	od.	791	LLN	00	5	1713	CYC	17	NIC	UTI	1110	7				
		-			-						A I Form	-				1					-		1		-								
1												-		-		i															1		
1		-					1	1		1		1		1		1		1			1		1		1					1	1		

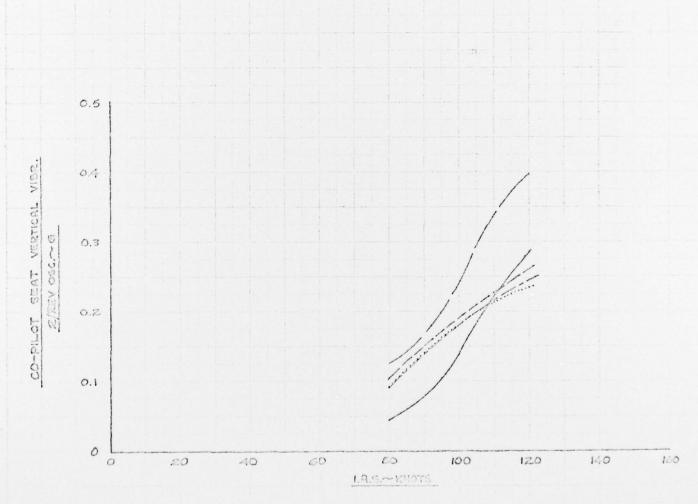
(FLT 48 STR. 107.0 IN.

SYM	FLT. NO.	DATE	CONFIG.
	40	1-11-72	206-706-129-1 HIGH SKID GERR
	78	1-14-72	206-706-129-1 HIGH SKID GERR W/206-050-221-3 X-TUBE SUPP. ASSY.
	70	1-14-72	206-706-129-1 HIGH SKID GEAR W/ 10 LB. LEAD WT. EACH SKID TUBE
arana sa umana en finance	90	1-17-72	STANDARD OH-588 SKID GEAR
	14	2-23-72	206-706-129-1 HIGH SKID GEAR AND LZ700-ZOGHS SKI KIT



MARIL OH-58A 1881 20 MILL 70-15070 11 206-194-122 BELL NO. 40621

SYM	FLT. NO.	DATE	CONFIG.
	48	1-11-72	206-706-129-1 HIGH SKID GEAR
Mark to an assault from the	7B	1-14-72	206-706-129-1 HIGH SKID GEAR W/206-050-221-3 X-TUBE SUPP. ASSY.
	70	1-14-72	206-706-129-1 HIGH SKID GEAR W/10 LB, LEAD WT. EACH SKID TUBE
	90	1-17-72	STANDARD ON-SBR SKID GEAR
	14	2-23-72	206-706-129-1 HIGHSKID GEAR AND L2700-206H5 SKI KIT



CO-PILOT SEAT VERTICAL VISRATION VS. INDICATED AIRSPEED C.G. TTR 105.0 IN. (FLITAR STR. MAONE)

SYM	FLT. NO.	DATE	
	48	1-11-72	204
	78	1-14-72	206
	7E	1-14-72	204
	93	1-17-72	5T
CONTRACTOR AND AND ADDRESS OF THE PARTY OF T	11.03	2-15-72	206

CONFIG.

206-706-129-1 HIGH SKID GERR

206-706-129-1 HIGH SKID GERR W/206-050-221-3 X-TUBE SUPP. ASSY.

206-706-129-1 HIGH SKID GERR W/10 LB. LEAD WT. EACH SKID TUBE.

5TANDARD OH-588 SKID GERR

206-706-129-1 HIGH SKID GERR AND LZ700-206 HS SKI KIT

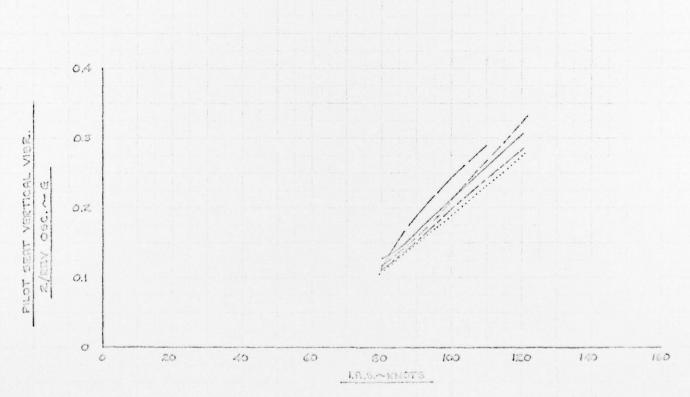
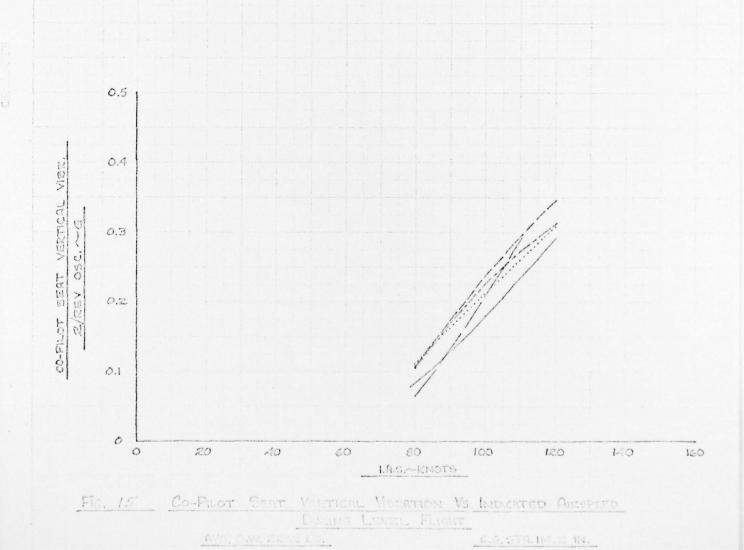


Fig. 14 PILOT SERT VERTICAL VIRENTON VS. INDICATED AIRSPEED

DURING LEVEL FLIGHT

AVG. G.W. 2232 LB. G.G. STR. NA.Z. IN.

SYM	FLT. NO.	DATE	CONFIG.
	48	1-11-72	206-706-129-1 HIGH SKID GEAR
	7A	1-14-72	206-706-129-1 HIGH SKID GEAR W/206-050-221-3 X-TUBE SUPP. ASSY.
	7E	1-14-72	206-706-129-1 HIGH SKID GERR WID LB. LEAD WT EACH SKID TUBE
	98	1-17-72	STANDARD ON-53A SKID GEAR
	IIB	2-15-72	206-706-129-1 HIGH SKID GEAR AND LZ700-Z06HS SKI KIT



BELL HELICOPTER COMPANY

MODEL OH-58A PAGE 23

the near

Fig. 16 High Gear Skid Tube With Ten Pound Lead Weight* and Ski Installed, BHC Photo No. 385276

*Production skid tubes have lead weights located internally.

BY_	T. L. S	ande	rs					MOD	OH-	58A PAG	E24
CHE	CKED O.L.	Nor	man		SELL HELICO		WORTH I TELAS	RPT_	206	-194-12	22
Sheet 1 of 3	DF FLIGHTS	Configuration/Purpose	Shakedown; engine fuel pump removed/replaced	Shakedown with 206-706-129-1 high skid gear Aft cg evaluation; high skid gear	0 0 30	valuati 06-050-	Large high skid gear strap, 206-052-105-13, installed, shimmed for 1/32 in. clearance between cross tube and cross tube support	5-052-	206-050-221 (isolation spring) cross tube support assy installed	nal sta	ta ta
	TABLE LOG O	G. G. Sta.		109.0	109.0	114.2	109.0	109.0	109.0	114.2	106.09
		G. W. (1b)		2417	2417 2427 2427 2417	2252	2417	2417	2417	2252 2991 2437	3036
		Time (hr)	0.1	0.3	00.2	0.1	0.5	0.3	0.3	0.00	0.3
		1972 Date	1-11	1-11	1-12		1-13			1-14	
		Flt No.		4A 4B	5.A 5.C 5.D 5.D	3E	V9 ,	63	29	7A 7B 7C	7D 7E
		G. R. No.	1								

ву Т. L. Sa				UCOPTE				OH-58A	
CHECKED O.L.	Norm	nan	*051 Diffice BOX	462 • 10	A1 WOATH I 16	14,	RPT	206-194-	-122
E I OF FLIGHTS	Configuration/Purpose	Same as 7D 10 lb lead weight removed from end of skid tube	77 (1) (1)	Std OH-58A landing gear installed Same as 9A Same as 9A	Removed std OH-58A landing gear; installed 206-706-129 high landing gear with 12700-206 HS ski kit	ch skid tub .050-221 cro	Same configuration, static longitudinal stab.	contiguration, as 11B plus stared ski kit, lestid tubes; vibra	kit installerskid tube; 20 ct assy modification aft or
TABLE LOG O	C. G. Sta.	110.22	110.53	109.0	110.84	110.22	114.2	0.90	106.0
	G. W. (1b)	2437	2427	2417 2250 2991	2417	2437 2437	2342	000	3006
	Time (hr)	0.3	0.3	000	0.3	0.2	0.0		0.0
	Date	1-13		1-17	2-10		2-15	2-16	2-22
	G. R. Fit No. No.	8A 8B	⊗ 	98 98 90	10A	10B 10C	11A	100	13B

BY_T.L			BELL HELICOPTER COM		MODEL	OH-58A PAGE	26
CHECKED O	.L. N	Vorm	an Post office for age . Foat waste	1 16145	RPT	206-194-122	
1 1	F FLIGHTS	Configuration/Purpose	Snow ski kit installed, 10 lb lead weight on each skid tube, 206-050-221 cross tube support assy modified to accept 206-052-105-13 strap which had .040 in. rubber removed to allow more clearance between cross tube and improve spring assembly operation				
	5	Sta.	100.0				
	3	(1b)	3006				
	T	(hr)	n. 0				
	1972	Date	2 - 2 3				
	<u> </u>	No.	77				
	×	No.					

BELL HELICOPTER COMPANY

MODEL OH-58 ^ PAGE 27

RPT 206-194-122

DISTRIBUTION LIST

- 1 Kelley/Mackenzie/Library
- 1 Flight Test
- 1 206 Project Office
- 3 USAAVSCOM
- 5 USAMC
- l BPA
- 22 DDC